

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 28 APR 2005

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Applicant's or agent's file reference PL70058PC00	FOR FURTHER ACTION <div style="text-align: right;">See Form PCT/IPEA/416</div>	
International application No. PCT/SE2004/000058	International filing date (day/month/year) 19.01.2004	Priority date (day/month/year) 20.01.2003
International Patent Classification (IPC) or national classification and IPC F02C9/18		
Applicant ALSTOM POWER SWEDEN AB		
<ol style="list-style-type: none"> 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: <ol style="list-style-type: none"> a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows: <div style="margin-left: 20px;"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. </div> b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 		
<ol style="list-style-type: none"> 4. This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application </div> 		
Date of submission of the demand 14.08.2004	Date of completion of this report 27.04.2005	
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized Officer Nordstroem, U Telephone No. +49 89 2399-2953	



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/SE2004/000058

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-6 as published

Claims, Numbers

1-15 as published

Drawings, Sheets

1/2, 2/2 as published

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:
 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify)*:
 - ☐ any table(s) related to sequence listing *(specify)*:

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

The invention concerns a gas turbine plant having a reactor for heating the air from the compressor, the heated compressed air from the air circuit side of the reactor being expanded in the turbine for delivering mechanical work as well as a method of controlling the load in such a gas turbine plant.

The nearest prior art is disclosed in document D1 (WO-A-02053969) describing a gas turbine having a reactor of the MCM (mixed conducting membrane) type, wherein air on the air circuit side of a membrane delivers oxygen through the membrane to the combustion circuit side of the membrane, the oxygen being mixed with fuel and the mixture combusted for delivering heat back to the oxygen depleted air in the air circuit.

The novelty of the matter of claim 1 and 11 is given as no means are suggested in document D1 for influencing the air flow in the air circuit of the plant.

The invention sets out to improve the controllability of the known gas turbine plant, which object is achieved in that a bypass regulating valve is provided on the air circuit side of the reactor, in order to enable temperature control of the air entering the turbine, thereby enabling load control of the turbine.

The bypass arrangements for bypassing the combustion chamber in a gas turbine engine disclosed in D2 (JP-A-06074061)

, are all concerned with bypassing the reaction chamber in which the fuel is combusted, by means of a valving arrangement having inlet and outlet combustion chamber isolation valves and a bypass valve. Although document D2 includes a bypass valve controlling the air flow from the compressor directly to the turbine, the object of D2 is to influence the combustion gas flow, and D2 is therefore not considered to urge the skilled man to consider influencing the pure air flow on the air circuit side of the reactor in the plant of document D1.

The matter of the independent claims 1 and 11, respectively, is therefore considered to be supported by an inventive step.

The dependent claims 2-10 and 12-15 define further advantageous embodiments which likewise are both novel and supported by an inventive step.

Re Item VII

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed

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(SEPARATE SHEET)**

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in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.